WHAT IS CLAIMED IS:

1.   An image processing apparatus comprising:

characteristic discrimination means for discriminating characteristics of an image;

saturation calculation means for calculating saturation information of the image;

parameter setting means for setting a parameter used to convert saturation of the image in accordance with the characteristics discriminated by said characteristic discrimination means; and

saturation conversion means for converting the saturation of the image on the basis of the parameter.

2.   The apparatus according to claim 1, wherein said characteristic discrimination means discriminates one of a plurality of attributes to which the image belongs.

3.   The apparatus according to claim 2, wherein the attribute is a color attribute of an image.

4.   The apparatus according to claim 2, wherein the attribute is set in correspondence with an object in an image.

5.   The apparatus according to claim 4, wherein the attribute includes at least one of attributes "person", "flower", "sky", "grass", "ground", and "general background".

6.   The apparatus according to claim 5, wherein the attribute further includes an attribute "white"

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indicating that a content of an image is substantially white.

7.   The apparatus according to claim 6, wherein the attribute further includes an attribute "other" which does not belong to any other attributes.

8.   The apparatus according to claim 1, further comprising:

holding means for holding saturation information in correspondence with the plurality of attributes, wherein

said parameter setting means sets the parameter on the basis of the saturation information held in said holding means.

9.   The apparatus according to claim 8, wherein said holding means holds optimal saturation values in units of attributes.

10.   The apparatus according to claim 9, wherein said parameter setting means sets the parameter to convert saturation of a color indicated by the attribute in the image into a saturation value held in said holding means.

11.   The apparatus according to claim 2, wherein said characteristic discrimination means segments the image into a plurality of blocks, and discriminates attributes in units of blocks.

12.   The apparatus according to claim 11, wherein said parameter setting means sets the parameter on the basis of an attribute with high priority when attributes differ in units of blocks.

13.   The apparatus according to claim 1, wherein said parameter setting means sets a plurality of parameters.

14.   The apparatus according to claim 13, wherein said parameter setting means sets the parameters in correspondence with low- and high-saturation sides of the image.

15.   The apparatus according to claim 13, wherein said saturation conversion means determines saturation conversion characteristics on the basis of the plurality of parameters, and converts saturation of the image on the basis of the saturation conversion characteristics.

16.   The apparatus according to claim 15, wherein said saturation conversion means determines the saturation conversion characteristics on high- and low-saturation sides of the image on the basis of the plurality of parameters.

17.   The apparatus according to claim 16, wherein the saturation conversion characteristics exhibit a monotonous increase.

18. The apparatus according to claim 16, wherein the saturation conversion characteristics exhibit a monotonous decrease.

19. The apparatus according to claim 1, wherein said saturation calculation means calculates saturation information of the image by converting the image expressed in a first color space into a second color space.

20. The apparatus according to claim 19, wherein said saturation calculation means further converts the image, which has been saturation-converted in the second color space by said saturation conversion means, into the first color space.

21. The apparatus according to claim 19, wherein the first color space is an RGB color space, and the second color space is an HLS color space.

22. The apparatus according to claim 1, further comprising:

detection means for detecting a color distribution of the image;

generation means for generating gradation correction information of the image on the basis of the color distribution; and

gradation correction means for performing gradation correction of the image on the basis of the gradation correction information.

23.   The apparatus according to claim 22, wherein said saturation conversion means performs saturation conversion for an image which has undergone the gradation correction by said gradation correction means.

24.   The apparatus according to claim 22, wherein said generation means comprises:

highlight calculation means for calculating highlight area information of an image on the basis of the color distribution; and

white balance calculation means for calculating white balance information on the basis of the highlight area information and a predetermined highlight value, and

said gradation correction means corrects gradation of the image on the basis of the white balance information and the highlight value.

25.   The apparatus according to claim 22, wherein said generation means comprises:

shadow calculation means for calculating shadow area information of an image; and

black balance calculation means for calculating black balance information on the basis of the shadow area information and a predetermined shadow value, and

said gradation correction means corrects gradation of the image on the basis of the black balance information and the shadow value.

26.   An image processing method comprising:

the characteristic discrimination step of discriminating characteristics of an image;

the saturation calculation step of calculating saturation information of the image;

the parameter setting step of setting a parameter used to convert saturation of the image in accordance with the characteristics discriminated in the characteristic discrimination step; and

the saturation conversion step of converting the saturation of the image on the basis of the parameter.

27.   The method according to claim 26, wherein the characteristic discrimination step includes the step of discriminating one of a plurality of attributes to which the image belongs.

28.   The method according to claim 27, wherein the attribute is a color attribute of an image.

29.   The method according to claim 27, wherein the parameter setting step includes the step of setting the parameter to convert saturation of a color indicated by the attribute in the image into a saturation value which is set in advance in units of attributes.

30.   The method according to claim 27, wherein the characteristic discrimination step includes the step of segmenting the image into a plurality of blocks, and discriminating attributes in units of blocks.

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31.   The method according to claim 26, wherein the parameter setting step includes the step of setting parameters in correspondence with low- and high-saturation sides of the image.

32.   A recording medium comprising program codes of an image processing method at least comprising:

a code of the characteristic discrimination step of discriminating characteristics of an image;

a code of the saturation calculation step of calculating saturation information of the image;

a code of the parameter setting step of setting a parameter used to convert saturation of the image in accordance with the characteristics discriminated in the characteristic discrimination step; and

a code of the saturation conversion step of converting the saturation of the image on the basis of the parameter.